

# THE BRISTOL GAS LIGHT COMPANY

## The Breillat Dynasty of Engineers

Harold Nabb



# BRISTOL BRANCH OF THE HISTORICAL ASSOCIATION

## LOCAL HISTORY PAMPHLETS

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*The Bristol Gas Light Company — The Breillat Dynasty of Engineers* is the 83rd pamphlet to be published by the Bristol Branch of the Historical Association. It covers the early years of the industry in more detail than is contained in the opening pages of the sixty-seventh pamphlet *The Bristol Gas Industry 1815-1849* by the same author. However, the emphasis is on the individual contributions made by members of the Breillat family both as practising engineers in Bristol and as consultants to undertakings in neighbouring towns. Once again the Bristol Branch of Historical Association is grateful to British Gas Plc and its Regional Chairman, Mr D. J. Hider, for generous help in the production of this pamphlet.

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*The illustration on the front cover is of the Lamplighter Weathervane which was installed at the Avon Street works of the Bristol Gas Light Company. Pre-dating the introduction of pole lighting it shows a lamplighter with his ladder and lantern.*

# THE BRISTOL GAS LIGHT COMPANY



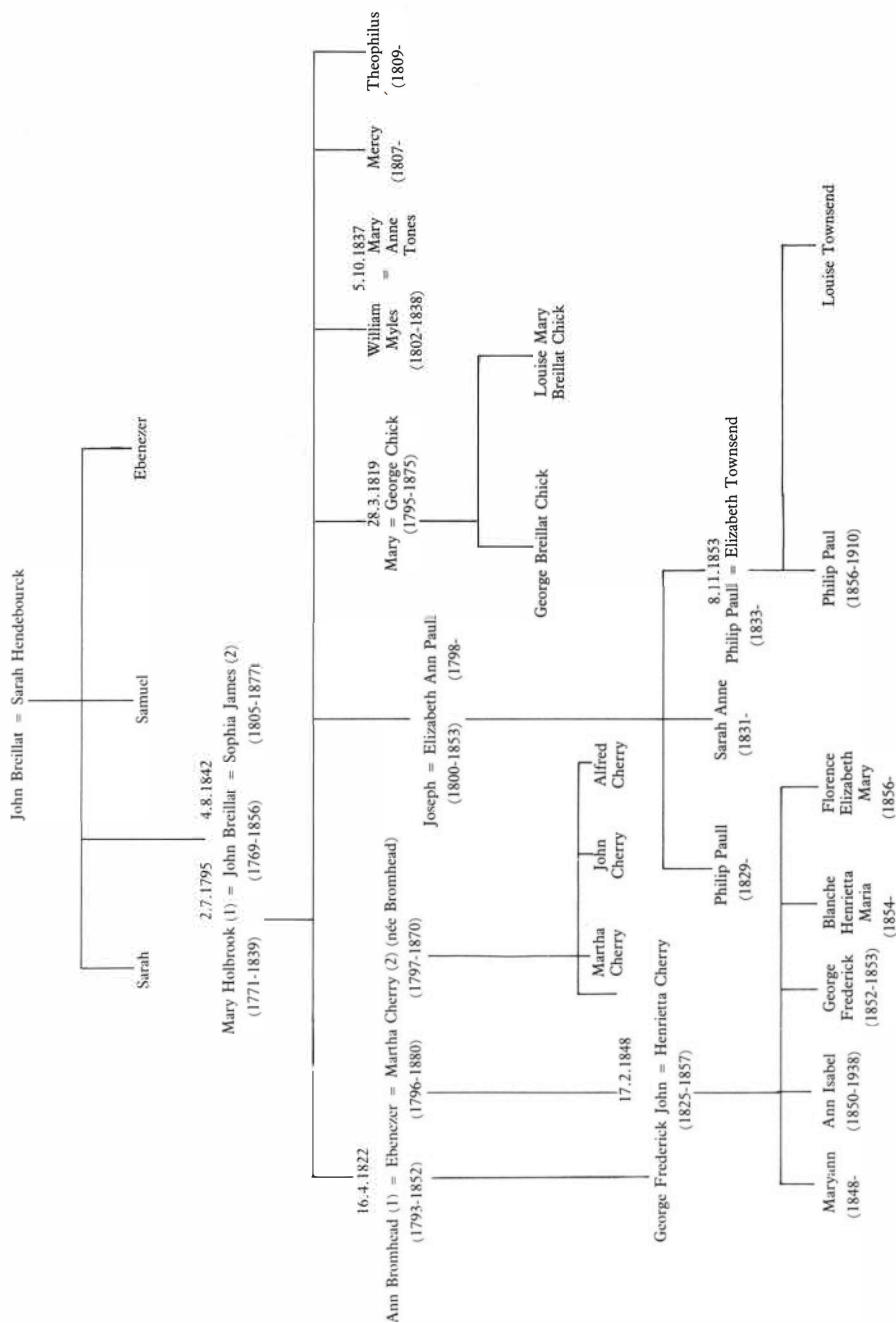
THE BREILLAT COAT OF ARMS

*It is not certain whether or not John Breillat was entitled to use this coat of arms.*

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# THE BRISTOL GAS LIGHT COMPANY

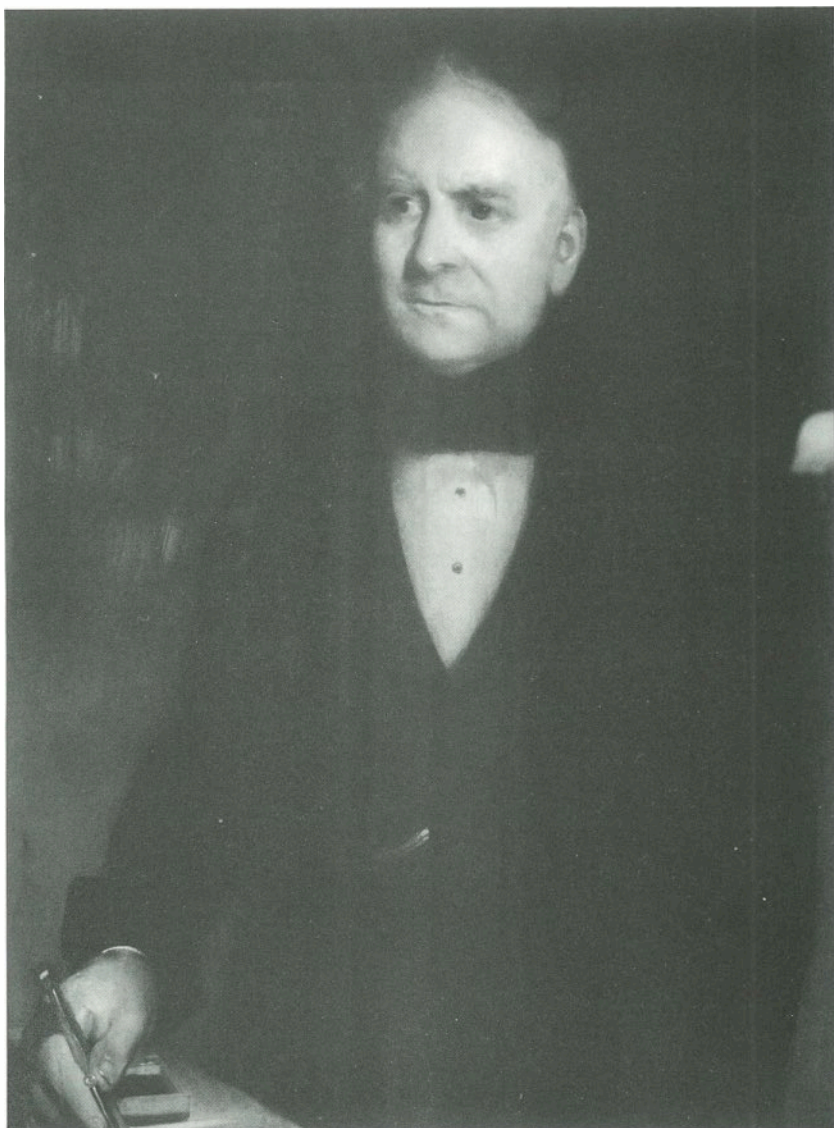
## The Breillat Dynasty of Engineers

Early in April 1856 the Bristol newspapers recorded the death of John Breillat on the 14th of that month at the gas works, Avon Street.<sup>1</sup> The cause of death on the certificate was given as 'Chronic Cystitis, Haematina Certified'. Due attention was paid by the press to his part in introducing gas lighting into Bristol and the scientific knowledge coupled with sound practical sense displayed as engineer to the Gas Light Company. His 'constant and unaffected urbanity of mind and manner endeared him to all who came in contact with him'<sup>2</sup>: by his death the city lost a benefactor and his employers a valued and valuable official.

However, although having lived in the West Country for over 60 years, John Breillat had been born in London. He was of Huguenot descent, the second child of John and Sarah (nee Hendebourck) being christened at Christchurch, Spitalfield on 24 September 1769.<sup>3</sup> It is not clear when he left the capital but on 2 July 1795 at St Nicholas, Bristol, his marriage to Mary Holbrook took place. Their first child, Ebenezer was born on 6 September 1796 and baptised a month later on 2 October by Charles Atmore.<sup>4</sup> A girl Mary was born on 3 October 1798 but seemingly not christened until 9 March 1800 at the same time as a younger brother, Joseph, born on 13 February 1800.<sup>5</sup> Subsequently, William Myles (12 July 1802),<sup>6</sup> Mercy (1 December 1807)<sup>7</sup> and Theophilus (19 August 1809)<sup>8</sup> increased the size of the family.

By profession, John Breillat was a calender and silk dyer. Ammonia, one of the products of coal gas manufacture, had an importance in dyeing, but it is uncertain whether this was significant in contributing to his interest. Moreover, the details of alleged contacts with William Murdoch, the pioneer of gas lighting, or attendance at Edward Heard's lectures on the subject in Bristol during 1805, cannot be verified. Nevertheless, by September 1811 John Breillat was able to advertise his own gas lighting demonstrations, but 'not without the imputation of bringing up unholy fire from the nine circles below'.<sup>9</sup>

Up to this time, Bristol, in common with other places, had relied on oil lamps for public lighting. Just eleven years before Breillat's exhibition the Corporation refused to pay more than £26-12s-0d for street lamps in the city, and for this they stipulated that there should be 3 lamps at the Mansion House, 4 in the



John Breillat (1769-1856)

*Founder and Chief Engineer of the Bristol Gas Light Company.  
Painted in 1845 by Lewis — British Gas plc South Western Archives.*



middle of Queen Square, 4 at the Drawbridge and 3 at the Council House. It was a rare thing then for lamps to burn all night: by midnight the thoroughfares were in total darkness.<sup>10</sup> With the appearance of Paving Commissioners in 1806 a new statutory authority existed to deal with the lighting, cleaning and upkeep of streets.<sup>11</sup> Indeed, it was a letter from one of the Commissioners, G Cumberland, in the *Bristol Gazette* of 8 December 1814, which publicly raised the matter of adopting gas lighting.

Eventually, steps were taken in 1815 to form a gas light company but there were many practical problems to be settled before the undertaking could become established. John Breillat left for London on 31 January 1816 taking with him £10 for expenses, a brief from a management sub-committee of the new enterprise, a plan of premises in Lewin's Mead selected as a site for the works and a map of Bristol indicating the proposed area of supply. Samuel Clegg, the chief engineer of the London and Westminster Chartered Gas Light and Coke Company, had been approached for advice beforehand. Breillat wrote back to Bristol on 2 February 1816 complaining of Clegg's attitude. This prompted Dr Kentish, the driving force behind the Bristol scheme, to send a letter of remonstrance to Clegg and another to Breillat asking him to again make contact. (A subsequent letter of 8 February from Breillat indicates that the communication from Kentish had had the desired effect on Clegg). Although Breillat was absent from his own business for a fortnight in London, he only claimed travelling expenses from the gas company.

As the gas industry was in its infancy, there was a shortage of people who could undertake satisfactorily the technical work involved. Although a member of the Moyle family of Cornwall asked to be considered, it was no surprise that John Breillat should be appointed superintendent to the Bristol Gas Light Company soon after his visit to the capital. He asked for a salary of £200 p.a. but accepted £150 p.a. (paid quarterly) plus a house on the works. Breillat was a shareholder in the concern and it is interesting to note that his new dwelling house - Nos 2, 3 and 4 Merchant Street - was used by the Management Committee for a meeting on 10 October 1816. In time the dyeing business was to be continued by George Chick who married Mary Breillat in 1819 at Bitton.

By now work had begun in building the first gas factory at Temple Back and steps were taken to arrange mainlaying with the agreement of the Paving Commissioners. Early in February 1817 Breillat was detailed to visit occupiers in Small Street, Union Street, Dolphin Street, Maryport Street, Bridge Street and All Saints Court to discover who would take gas if mains were laid. The plant installation was completed and the holder christened 'Aladdin': having

a capacity of 36,500 cubic feet it was the largest holder in the country at the time. To cope with a growing demand, Clegg persuaded the Committee during the Summer of 1817 to install one of his patent flat retorts. However, its late delivery contributed to difficulties in maintaining gas supplies which may have induced the Company to approve 4 new retorts in accordance with Breillat's plans. The Paving Commissioners pressed for the area of gas street lighting to be extended: although the light given by naked jets was much inferior to that provided by mantles at the end of the century, it was still better than that given by oil lamps. One gas public lamp replaced four which used oil.

At this period the advocates of coal gas may have been discomfited by reports of alternative lighting processes based on oil. (Dr) William Henry of Manchester in 1805 had revealed the results of experiments on the destructive distillation of oil but many years were to elapse before any real attempt was made to turn his findings to commercial advantage. Then, in 1815, John Taylor of Essex obtained a patent for an apparatus to produce illuminating gas from oil but found problems with the iron retorts employed. He was followed by a J B Emmet of Hull who obtained a light comparable — if not better than — that from coal by distilling various oils mixed with dry sand or pulverised clay. One of Emmet's motives was to protect the Greenland whaling trade since fish oil had experienced difficulty in competing with coal gas for lighting. He hoped that a gas made from oil would restore consumption levels, especially as the product could be rendered so far portable that houses situated in streets without gas pipes 'may daily receive sufficient supplies of it without having to make it themselves'. Taylor's original intention had been to specialise in portable gas plants and a number were made and installed in public buildings.

In Bristol a large potential consumer which might have been expected to take a particular interest in alternative gases was the Commercial Rooms.<sup>12</sup> Despite his position as consultant to the Bristol Gas Light Company, Samuel Clegg was approached directly by the Management Committee of the Rooms. The building had been opened on 5 October 1811, being lit by oil lamps and candles at a cost of £120 p.a.<sup>13</sup> In 1817 the Rooms' Committee of Management sought to obtain gas lighting in the principal rooms at a cost of 80 guineas a year. Wasborough and Company calculated the fittings costs would be £142-11s-0d against an earlier estimate by Clegg of £42. Needless to say the Committee favoured the latter's proposition despite noting that 'that Gentleman seems hardly to have made up his mind on the precise mode of fitting up or the quality of light which would be required'. The figure of £84 represented the difference between current lighting costs and the amount still required to be spent on candles after introducing gas. In the event the Gas Light Company stated their annual charge would need to be £120 so the project foundered.





Mary Holbrook (Born 1769) —  
wife of John Breillat, mother of  
Ebenezer, grandmother of George  
Frederick John, great grandmother  
of Anne Isabel.



Anne Bromhead — wife of Ebenezer  
Breillat, mother of George Frederick  
John.

*(Both photographs courtesy of Mrs. Robyn Ford, Ambarvale, NSW)*

Although Wasborough and Duggan, Wiltshire and Westcott had been appointed 'to fit up the shops, warehouses etc of all persons willing to take the light and that they have the exclusive right to fit up the said work whilst they do it well and charge the Public fair and reasonable prices' there must have been some misgivings about their competence.<sup>14</sup> Clegg obtained fitter's-up guidelines from London and the arrangements with Wasborough and Company were rescinded.<sup>15</sup> Instead, John Breillat was ordered to inspect all internal fittings — many of which were supplied from the Midlands by Jones and Barker of Birmingham amongst others — and, if these were well and effectively done, provide a gas supply. Such extra responsibility coincided with increasing numbers of consumers, plans to build a new retort house and gasholder and introduce a purification process pioneered by Reuben Phillips at Exeter.<sup>16</sup> Consequently Ebenezer Breillat was designated Superintendent to assist his father, the Engineer, in March 1818 at a salary of £75 p.a. (It is interesting that Ebenezer would have completed his 7 year apprenticeship to John Davis, silk dyer, and his wife Elizabeth only a short time before as the articles commenced on 6 February 1811).

A minute of 3 February 1819 recorded the award of 5 guineas and a silver cup to Ebenezer for 'his spirited conduct' in stopping a dangerous leak on fire at the works. He appears to have been re-designated Assistant Engineer about this time, although his annual salary was not changed. In November of the following year the company concluded a seven year agreement with Ebenezer, terminable at the end of 3 or 5 years by either party on receipt of 6 months' prior notice. He was to work exclusively for the company, reside at the gasworks and attend to the business of the concern at all times by night as well as day. His salary was to be £150 p.a. for the first 3 years and then £200 p.a. plus the usual requisites. (Thomas Spinney received £250 p.a. at Cheltenham in 1821 but was responsible for clerical and managerial duties as well as engineering. In the North West of England an engineer would have received between £75-£150 p.a. in the 1820s according to the size of works).<sup>17</sup>

Meanwhile, his father was experimenting successfully with a coke/coal mixture to heat the retorts more economically. As a new works was planned on another site to meet the growing demand, on 20 June 1820 John Breillat with two members of the Committee of Management, Jones and McDowell, visited a number of new works in various places to obtain information. The objectives 'were not only to discover everything that was worthy of imitation but to find out what were the errors and inconveniences in the different departments of every station that these may be avoided in the company's intended new erections'.<sup>18</sup> Unfortunately they did not find any place whose general lay-out could be recommended in its entirety. They did ascertain that ample provision

should be made to lay down new retorts and holder capacity every summer to cope with increases in consumption during the following winter.

John Breillat's competence as a gas engineer had become well established by now throughout the West Country and South Wales, such that on 25 October 1820 he wished to employ his second son, Joseph, and one of the workmen on business at Newport, providing it was acceptable to the Bristol company. During his father's absence, the Clerk of the company, J C Harris had to write a letter to Ebenezer admonishing him for neglect of duty in not attending to gas fittings and other relevant matters. (Although responsible mainly for legal, financial and administrative matters, Harris was in charge of the inspectors of lights and meters and the lamplighters). In his turn, Ebenezer 'improperly' laid the letter before the Committee to justify his neglect at the works on 6 and 7 November 1820. This led to consideration of Ebenezer's salary and terms of employment being deferred, but as has been noted a new contract was made.

The minutes of the company for 27 June 1821 record that the Magistrates were expected to recommend a General Illumination of the City on 19 July in honour of the Coronation of George IV. Preparations were ordered for 'splendidly lighting with gas the external part of the offices in Queen Square in some manner suitable to the occasion'.<sup>19</sup> The Engineer was to carry this resolution into effect.

Despite his involvement with the new works at Avon Street, John Breillat found time to visit Taunton and advise the sponsors of a gas undertaking there. In August 1821 he opposed their choice of a site for the gasholder since it was too close to houses and would be a nuisance.<sup>20</sup> However, one of the patentees of an oil gas process visited Taunton and persuaded the backers to abandon coal for gas manufacture.<sup>21</sup> Thus Breillat was to experience personally the impact of a rival technology before the appearance of the Bristol and Clifton Oil Gas Company.

However, there were urgent matters involved in commissioning the new works at Avon Street to occupy the Breillat family. Joseph was recommended to receive an additional 3/- per week in wages on account of his 'assiduity and attention'.<sup>22</sup> Ebenezer's prospective residence at the new works was to be completed 'with all possible expedition' so that he could move in as soon as it was ready.<sup>23</sup> John continued to visit other gasworks at the behest of a Building Committee, which led to ovens on the Liverpool pattern being installed.<sup>24</sup> Also, there were efforts to regularise the way in which the works operated. Following the discharge of a 'blasphemous person'<sup>25</sup> who had been taken on inadvertently, a bell was procured to regulate attendance<sup>26</sup> and rules

**TO CONTRACTORS.**

**THE COMMITTEE** for managing the affairs of the **BRISTOL GAS-LIGHT COMPANY** give Notice, that Plans and Specifications are ready to be exhibited, and sealed Tenders will be received, at their Office, on or before Wednesday, the 14th day of February next, at three o'clock in the afternoon; for Excavating, Building, and Erecting, at their new Station, situate in Avon-Street, St. Philip and Jacob, and near to the Floating Harbour of Bristol,—one Tar Cistern; five Gasometer Tanks; a large Retort House, with Wrought Iron Framed Roof; three Dwelling Houses, to be covered with Slate; several Shops, for the use of Mechanics; extensive Boundary Walls, and sundry other Buildings or for performing any part of the said Works, or any distinct branch of the same.

Forms of Proposals may be had on application to the Clerk; and none will be received unless presented, agreeable thereto, on or before the hour abovementioned.—By Order of the Committee,  
**JOHN C. HARRIS, Clerk.**  
**Gas-Light Office.**

Advert from the *Gloucester Journal* 1821. (courtesy Gloucester Reference Library)

issued relating to workmen (A man coming to work drunk would be fined 6d for the first offence but sacked for a second. All persons quarrelling or using improper expressions would be fined 6d each). Earlier, the Committee of Management itself had decided to adopt a code of practice for the conduct of meetings<sup>27</sup> and to continue the established pattern of members visiting the works in turn but providing a book to record their comments. It had also established Sub-Committees for Buildings, Expenditure and Lights. Then in 1823<sup>28</sup> it was resolved that after 18 August of that year no servant of the company could either directly or indirectly hold shares in the business.

From September 1822, John Breillat had been involved in experiments to determine the relative merits of coal and oil gas in view of determined efforts to promote a rival gas supply undertaking (Oil gas was claimed to provide a cheaper, more brilliant light free from offensive odours). His salary now amounted to £275 p.a., whilst Ebenezer received £150 p.a. and Joseph Chapman<sup>29</sup>, clerk of works, £200 p.a. A deficient supply of gas on 24 April 1823 due to water getting into the holder was attributed to the misconduct of Ebenezer. It was resolved to give six months' notice to end his agreement with the company: if he chose to continue in service after that period his salary would be made to vary with the rate of dividend (from £100 p.a. at 6% or under

to £150 at 10%).<sup>30</sup> On 10 December 1823 it was agreed that Ebenezer should continue his employment for one year on a salary scale of £125 p.a. for 6% or less to £200 p.a. for 8% from 21 December. A proposed reduction in the salary of the clerk of works led to a letter from Chapman resulting in his departure.<sup>31</sup>

Following the death of the Clerk to the Bristol Gas Light Company, John Cooper Harris, on the morning of 6 February 1823, his assistant had succeeded to the position with a salary dependent on the rate of dividend. £200 p.a. at 6% or under rising to 300 for 10%).<sup>32</sup> The principle was adopted by the Committee of Management itself on 23 July 1823 when it was accepted that members attending should be paid on a scale ranging from 2/6d (when the preceding half-year's dividend should have been 5% or under) to 5/- (for 10% dividend): attendance being necessary from the beginning to the end of the proceedings. Consequently, it came as no surprise that in December 1823 notice should be given to John Breillat that his agreement of 24 June 1819 would be terminated from 24 June 1824. It was ordered particularly that when the Clerk handed over the notice to Breillat he should inform him new proposals would be made to him about his future salary.<sup>33</sup>

Dividends had fallen from 10% in 1820 to 6%, coinciding with the investment in the new works at Avon Street. The proprietors must have continued to view their future with confidence as a further issue of 500 shares of £20 each in September 1822 was subscribed 3 times over: these were then allocated on a basis of 1 new share to 7 old ones.<sup>34</sup> Even so, stringent economies had been considered in all aspects ranging from reductions in wages, blocking up windows where possible in the company's houses to avoid tax,<sup>35</sup> to moving the offices from Castle Green to Avon Street works.<sup>36</sup>

John Breillat would have been aware of the situation but felt aggrieved that his duties were expected to be unchanged whilst his earnings were to be reduced.<sup>37</sup> In a letter of 17 March 1824 he complained whereas his salary would be the same as the Clerk's he was expected to attend from 6 or 7 a.m. to 11 p.m., occasionally working at nights and on Sundays. He suggested a minimum of £250 p.a. or an adjustment of hours, but neither of these options proved amenable to the Committee of Management.<sup>38</sup> Since John Breillat had taken no steps to obtain alternative employment he concluded a letter of 29 April by saying 'I enter into this agreement with not exactly the same feelings towards the Bristol Gas Light Company as those I have been accustomed to experience'.<sup>39</sup>



Ebenezer, who had married Ann Bromhead at SS Philip and Jacob on 16 April 1822, also was in a difficult situation. The Committee resolved on 24 June 1824 to issue him with a notice to quit his employment and give up possession of the house he occupied on 21 December or such earlier time as might be convenient. A week previously the Police Commissioners in Manchester had obtained statutory powers in support of their gas supply operation<sup>40</sup> and made plans to build a new large works just off St George's Road. Ebenezer would appear to have written to the Commissioners in April<sup>41</sup> but a visit to Manchester in August must have been favourably received since a letter was sent to Bristol asking about his character, experience and salary.<sup>42</sup> Silas Dibsdall, in his capacity as Chairman, replied on 19 August confirming that Ebenezer had been engaged for seven years acting as assistant to his father. 'It has been his duty to seeing the Charging and Discharging of the Retorts - inspecting the diligence and attention of the workmen to the Condensing and Purifying of the Gas and to the arrangement of a large manufactory capable of lighting the whole of Bristol.'<sup>43</sup> Other activities included drawing plans, experimenting on both oil and coal gases, inspecting fittings and sometimes representing the Engineer at the Management Committee. Reference was made to 'a seeming diffidence in his address' but despite this there was no doubt of his ability to manage a large gasworks. The agreement made in 1819 for 7 years was mentioned, with its salary of £200 specified in the final year, but subsequent differences were ignored. As all production was now carried on at one spot Dibsdall felt 'a second Engineer is no longer necessary and have therefore given him the opportunity of obtaining a better situation'.<sup>44</sup> Ebenezer was invited to visit Manchester again on 10 September, all expenses paid, when he was told he was to be engaged at a new works (St George's Road) and involved also in extending the distribution network.<sup>45</sup> Before leaving Manchester he had to prepare a drawing of the sizes of the plates for the top of a new gasholder. He handed in his notice at Bristol on 14 September thanking the Committee for the 'very handsome manner' in which they had recommended him to his new Directors.<sup>46</sup> A son, George Frederick John, was christened on 19 December 1825 at Manchester Cathedral. The *Manchester Director* for 1829 contains two entries for Ebenezer: a manufacturer of sal ammoniac and prussian blue with works near Ancoats Bridge and a private residence in Ancoats, giving his occupation as 'chymist'.

Whilst Ebenezer continued in Bristol, John Breillat was given leave of absence for a new days to visit Newport where he took advantage of the situation to inquire about coal and prospects for selling tar.<sup>47</sup> However, there would still seem to have been some coolness between John and the Committee members following complaints about a deficiency of gas on 7 December 1824.



The subject of the engineer leaving the company came up in discussion, John Breillat stating that in his view he was at liberty to give one days' notice. The Committee considered this appeared 'completely at variance with propriety' so that John Breillat undertook to give one months' notice if he should leave providing the Committee would do the same.<sup>48</sup> On 2 February 1825, he secured permission to absent himself occasionally during the next six months providing the works was left under adequate supervision. A site at Mill Street, Newport, was secured for the building of a gas works on 4 March 1825; John Breillat's offer to superintend the work for a fixed sum of £100 being accepted.<sup>49</sup>

The Company's annual salary and wages bill was reduced by over £500 from £2768 in 1823 to £2266 in 1826. This was achieved mainly by cutting the expenses of management through the elimination of the posts of assistant engineer and clerk of works. However, John Breillat's own earnings declined by over one-quarter from £287-10s-0d in 1823 to £212-10s-0d in 1826 despite the income from gas rising marginally over the period. One small concession which he did obtain was that the Committee decided to rescind his responsibility for turning off the supply of gas into the mains at morning although still requiring him to turn on the valve at night.<sup>50</sup> Coal was another major item of expense which was subject to economies. The Bedminster Coal Company was displaced as a major supplier by Castles and Rudgeway, whilst Philippa Toghill and William Pritchard provided special types of coal.

Perhaps unsurprisingly with the emphasis on containing expenditure the company amongst others was approached by Kearslake and Crealock of London about using Phillips' patent method of purification without payment.<sup>51</sup> Representatives of other interested companies — Cheltenham, Bath, Old Birmingham and Birmingham and Staffordshire — attended a Committee meeting at Bristol on 3 January 1827 where they agreed to share the cost of defence if an action was brought against any one of them. Samuel Clegg had written to John Breillat from Etna Ironworks, Liverpool, on 7 December 1826 claiming to have been the first person to have applied lime for purification by making it into a paste and put in alternate layers with coal in a vertical retort in 1805 or 1806.<sup>52</sup> The Bath engineer, W H Eastwick, wrote to Breillat asking 'Are you inclined to trust to Mr Clegg's evidence which really appears to me from your statement likely to invalidate the patent.'<sup>53</sup> Despite a detailed affidavit from Clegg sworn on 26 June 1827<sup>54</sup> it appeared the case would be lost,<sup>55</sup> so the companies agreed to pay £1500 for the past and future use of the method, the Bristol share being £423.<sup>56</sup> The most active participants on behalf of the group of gas companies were Silas Dibsdall, Chairman of Bristol Gas Light and Thomas Spinney, the Cheltenham engineer.

A vote of thanks to Dibsdall was sent by Captain William Jones Lye<sup>57</sup> of the Bath undertaking, whilst the Bristol shareholders approved the award of 50 guineas worth of plate for the 'very satisfactory manner he dealt with the Phillips' negotiations.'<sup>58</sup> Thomas Spinney was given 20 guineas 'for his very able and valuable services' from the Bath company, together with £20 from both the Old Birmingham and Birmingham and Staffordshire companies.<sup>59</sup>

The circumstances of Bristol Gas Light improved considerably during this time, particularly as it had become difficult to produce the rival oil gas economically. John Breillat's salary rose steadily from £225 in 1827 to £300 in 1831 as dividends increased. A decision to provide additional light in the porter's lodge - where timekeeping records were kept together with details of coal received etc - was extended to accommodate Breillat's kitchen, if 'injury to the building' could be avoided.<sup>60</sup> When the quality of the well water supplied to the houses on the works deteriorated, the Committee consented to find a new well as close as possible.<sup>61</sup> Tea had been provided for the Committee of Management for some years, which body thought it would benefit from a new tea service and 'waiter'.<sup>62</sup> Later it was agreed to install a water closet for members' use<sup>63</sup> and improve the ventilation of the Meeting Room.<sup>64</sup> Instead of seeking to buy back shares, new ones available for issue were being sold at £38 each in 1830.<sup>65</sup>

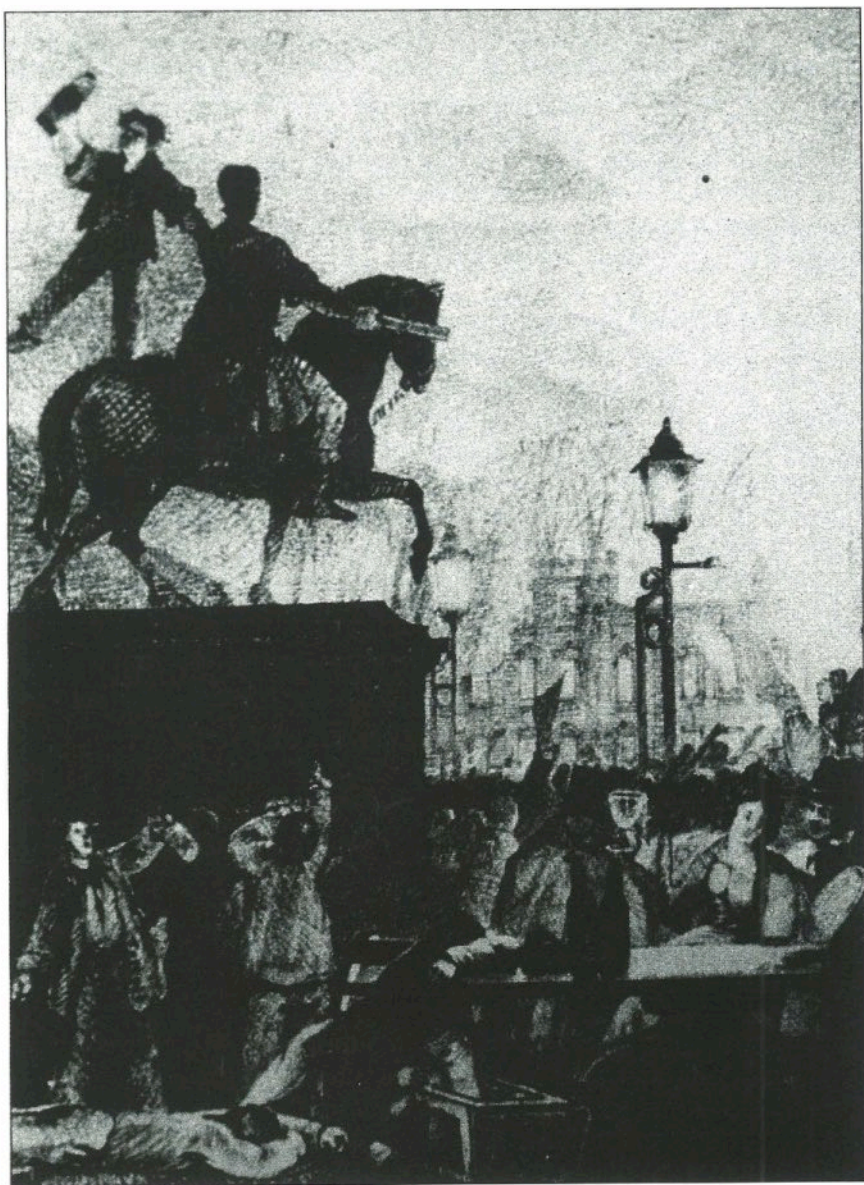
However, perhaps the most important evidence of better times as far as the Breillat family was concerned could be found in a decision to resurrect the position of assistant or sub-engineer. Ebenezer had maintained some contact with the Bristol Company as shown by his affidavit in the case of Phillips' patent, whilst late in 1830 a cheque for £15-13s-5d was made out to him for 'iron borings'.<sup>66</sup>

A letter was sent to Ebenezer on 20 January 1831 asking him if a vacancy should arise whether he would be interested and, if so, available to take it up. Ebenezer's reply indicated pleasure 'for an opportunity to return to my native City, among my friends' but that 2/3 months' notice would be necessary.<sup>67</sup> No salary had been specified so far but a special Meeting of the Finance Committee on 9 February 1831 proposed a sliding scale - with a maximum of £150 p.a. at 10% dividend - similar to that which had been applied previously. James Webb<sup>68</sup> wrote to his 'Respected Friend' Ebenezer giving details of the arrangement and a starting date not later than 24 June 1831. As the terms represented no improvement - except in health - on Ebenezer's existing situation, he was prepared only to accept them for 3 years when by strict attention to the interests of the concern 'some increase might be given'.

The Committee undertook to reduce the period of the agreement from 7 to 3 years but could not anticipate any subsequent consideration.<sup>69</sup> Ebenezer in turn explained that he believed his increased experience and industry would weigh with the Committee in due course and he resumed his old post on 8 June 1831.<sup>70</sup> In support of their change of attitude the Committee were conscious of the growth of the business and the problems which could arise from the illness or death of John Breillat who was now in his 62nd year. A list of the duties to be undertaken by both the engineer and sub engineer were prepared by the Finance Committee.<sup>71</sup>

At this period Bristol generally was not prosperous, a fact which heightened the great excitement arising from the prospect of Parliamentary Reform with the return of two Whig candidates for the first time since 1774. Mindful of public feelings, the Gas Light Committee had on 8 December 1830 resolved that those workmen who were willing to become special constables for the parish should accompany the Clerk and the Engineer to be sworn in. At 12 o'clock on 31 October 1831, the Clerk summoned a Special Meeting with James Webb in the Chair to consider the best way to protect the gas works from injury 'during the present riotous state in which the City is involved.' A little earlier a verbal communication was received from the Magistrates asking whether a military force should guard the premises. The Committee undertook to receive as many men who could be accommodated within the walls and under cover. An Emergency Sub-Committee of 3 was nominated with full powers to act 'in concert with the Clerk and Engineer'. The whole of the company's workforce were required to be in attendance at the works with provisions to be supplied for them and the military. Not until after the evening of 9 November 1831 were the 'pensioners' stood down, the cost to the company being £7-19s-0d.<sup>72</sup>

Fireclay retorts which had been introduced in Scotland in 1820 and used experimentally at Bristol two years later were attracting more attention amongst gas engineers by now. Thomas Spinney of Cheltenham wrote to John Breillat on 3 March 1831<sup>73</sup> about the success which could be achieved with brick ovens in works using wet lime purifiers. Breillat together with Silas Dibsdall visited Cheltenham where three days were spent in observing the plant at work. Although conceding that leakage was minimal and the labour requirement economical, much of the benefit was considered by Breillat to arise from being able to operate the ovens at low pressure due to the location of the works relative to the town. The greater number of lights in Bristol and the local terrain meant a holder pressure of 2½ inches was required compared with only 5/8ths of an inch in Cheltenham, thereby reducing the financial advantages to be derived from using ovens. Nevertheless, it was felt that 4-6 ovens should be tried,



Queen Square riots — (*Thos. Rowbotham*)

This detail shows a gas lamp many of which were damaged by the mob.  
Original lithograph 7¾" × 13" in the City Art Gallery, Bristol.



providing the costs were acceptable, in view of the possible reduction in retort house labour which could result.<sup>74</sup> Spinney had invented a valve to supersede the necessity of a hydraulic main which could be used with brick ovens or retorts that he was prepared to licence for 10% of the annual savings. The Bristol Committee of Management decided to postpone any change in their methods of gas production in view of the number of elliptical iron retorts in stock and on order.<sup>75</sup> However, bricks were used in the bottoms of one oven and some D-shaped retorts, receiving favourable notice in a report on the state of the works in March 1835. The Engineer went on to note that the quality of the bricks and clay supplied from Stourbridge had deteriorated so the company should consider negotiating with the manufacturers, purchasing locally or producing bricks at the gasworks.<sup>76</sup> Ebenezer visited a number of works in the Midlands and the North to compare the efficiencies of retorts, brick ovens etc claiming travelling expenses from Manchester to Newcastle return of £7-0s-0d and another £5-4s-11d for rivets purchased by him in Manchester.<sup>77</sup>

Eventually, it was decided to install 'experimental apparatus' to more accurately determine the output from different types of plant, fuel consumption and the effect of using high pressure steam to remove impurities such as sulphur and ammonia.<sup>78</sup> Results favoured D-shaped retorts with tile bottoms. Despite this evident concern with production standards, the undertaking - together with those in Manchester and Birmingham - was criticised severely by one 'Peter Pindar' in a letter to the *Mechanics' Magazine* of 18 November 1837. 'The shape of the retorts, the objectionable manner of setting them, and the small number placed in each bed, are alarming instances of extravagant waste of iron, fuel, and building materials'. As the writer devoted considerable space to praising a method of gas making devised by Stephen Hutchison of the London Company, the Bristol Committee of Management wrote to other metropolitan gas suppliers - Chartered, Equitable and Phoenix - enquiring whether they had adopted the process.<sup>79</sup> (The Chartered reply would have been especially interesting since another letter in the same issue of the *Mechanics' Magazine* signed 'Verax' referred to another new method pioneered by John Evans at that Company's Horseferry Road Works).

There were other problems at this time on the distribution side. After the United Parishes of St James and St Paul adopted street lighting in 1833, the slightest wind could extinguish the flames in the lamps at the extremities of the mains system due to very low pressure. Complaints of poor pressure became more frequent from consumers in the city centre itself as the supply network was extended. One reason for this state of affairs was the decision to close Temple Back works and concentrate manufacture at Avon Street one mile

further away.<sup>80</sup> Another was the increase in gas made from 32 million cubic feet in 1824 to 43 million cubic feet in 1836. To overcome the difficulties a 14 inch main was laid from the works to Tower Hill in 1837. Moreover, other alterations to the pipes were unavoidable due to the construction of new railway lines. The Great Western Railway diverted mains near Temple Meads in 1839.<sup>81</sup> Subsequently the Bristol and Exeter<sup>82</sup> disrupted supplies to Totterdown as a cutting was made through Pylle Hill, whilst the Bristol and Gloucester Railway constructed a line of viaduct pillars over a gas main.<sup>83</sup> The erection of a bridge over the Floating Harbour by the Great Western Railway provided another form of inconvenience since it prevented coal vessels reaching the gas works.<sup>84</sup>

The return of Ebenezer to Bristol enabled John to devote more time to consultancy. In 1831 it was decided to light Wells, Somerset and two members of the Committee appointed went to Bristol to seek his assistance. John visited Wells and calculated that £4000 would be required to ensure the complete lighting of the city.<sup>85</sup> The resultant Bill received Parliamentary approval in 1832. About the same time he was appointed supervisor and surveyor to the Neath Gas Light and Coke Company which had entered into an agreement with the Neath Abbey Iron Company for the erection of a gas works. The contract, including 3179 yards of main and 50 street copper lanterns was to be completed in 4 months for £1400.<sup>86</sup> Four years later the Dursley Gas Light and Coke Company appointed Breillat to survey on their behalf the works built for them by Henry Stothert of Bath.<sup>87</sup> Stothert gave evidence in connection with a proposed Bath New Gas Company in 1837, observing that at this ironworks he used 3 Argand burners in one Counting House and 2 in another, but that the supply was interrupted some times causing candles to be used.<sup>88</sup> The Bath Gas Light and Coke Company wrote on Monday, 3 July 1837 to ask if Mr Breillat Senior could appear on their behalf before a Committee of the House of Lords. This required John Breillat to leave Bristol mid-day the next Wednesday, inspect the works at Bath in the evening, and depart for London on Thursday morning. Permission was granted by William Naish for the Bristol Company.<sup>89</sup>

Experienced gas engineers were in great demand at this period. John Breillat's third son, William Myles, followed his elder brothers, Ebenezer and Joseph into the company. During the autumn of 1827 he acted as an Inspector involved in surveying and cleaning burners and fittings. In 1834 he sought a position with the Lincoln Gas Company.<sup>90</sup> His application would appear to have been unsuccessful as he then appears in trade directly as a gas fitter and metre (sic) maker, living in Avon Street.<sup>91</sup> Yet, this venture into private business and his



marriage to Mary Anne Tones at St Nicholas Church, Liverpool on 5 October 1837 were not to last long as William died in February 1838. In June of that year the Bristol Gas Light Company authorised a payment of £24-14s-3d for a lathe, tools etc which had belonged to him.<sup>92</sup>

Price reductions made by the Bristol Gas Light Company during this period were of some importance to the Breillats. A decrease from 15/- to 12/- per thousand cubic feet in 1836 did not affect the rate of dividends but a further cut to 9/- by meter in June 1838 was significant. One consequence was that the salary of John Breillat fell from £75 to £62-10s-0d for the December quarter 1838, with a comparable reduction for Ebenezer from £37-10s-0d to £31-5s-0d. This time, however, the Committee 'having taken into consideration the long and faithful services of the Engineer and the increased duties devolving on him, and also the Sub-Engineer', resolved that the salaries of the two posts be continued at £300 and £150 p.a. respectively and that the graduated scales be no longer operated.<sup>93</sup> Such a decision seems in hindsight to have been prudent as the demand for gas rose appreciably - thereby increasing the burden on the engineering staff with the consequence that the dividends rate did not fall to the low levels of the 1820s before reverting to 10% in 1845.<sup>94</sup>

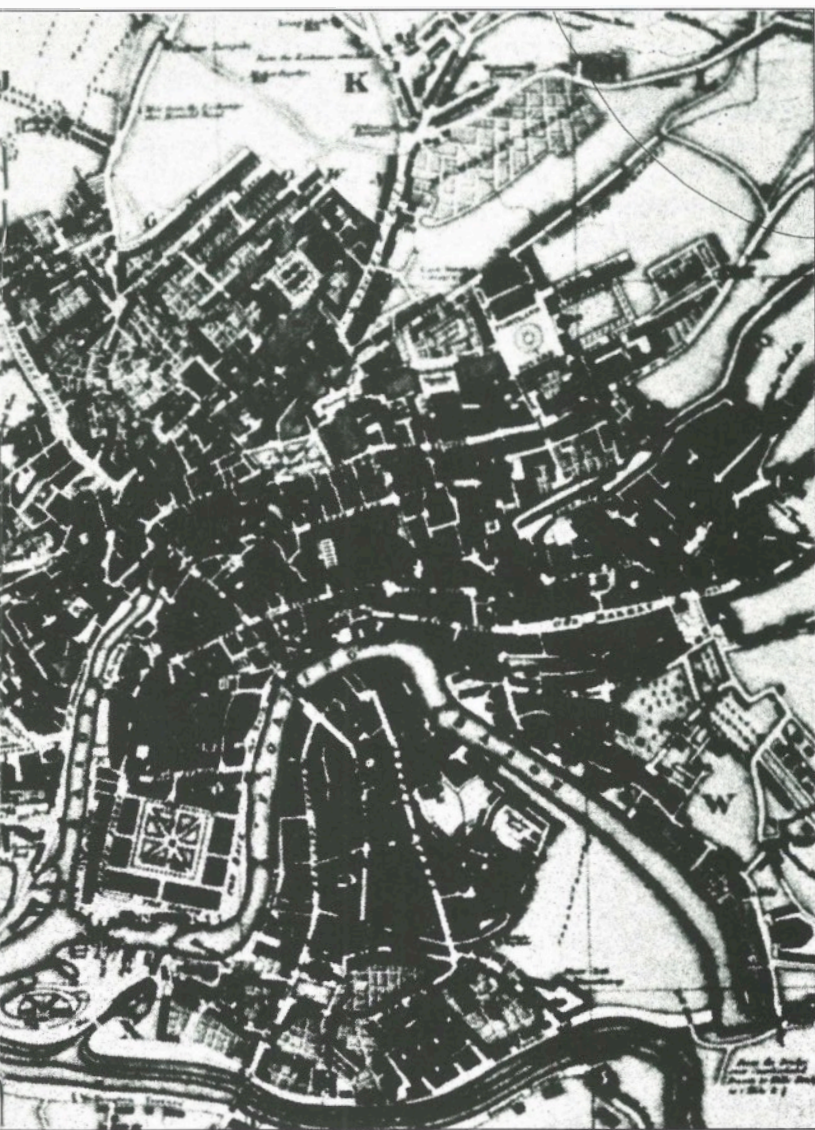
In the summer of 1839 the Breillat family suffered another loss with the death of Mary, John's wife for 44 years, on 23 July 1839. She was buried at Arnos Vale, the service being conducted by Reverend George Armstrong of Lewin's Mead.<sup>95</sup> John continued to reside at the works, his material needs being attended to by Sophia and Hannah James.<sup>96</sup> On 4 August 1842, Sophia and John were married at Lewin's Mead Chapel.

For some years the workmen — like the Breillats — did not enjoy increased earnings despite the expansion of the business. In 1839 there must have been a wage increase since 19 workmen wrote to acknowledge 'the favours received which greatly exceeded our expectations'.<sup>97</sup> A markedly different tone was apparent in another letter some two years later when 10 men — presumably retort house workers — maintained that 'our wages are low and provisions are high so that we cannot have the necessities of life, leaving out the comforts, our living will not supply us with the strength to do your work'.<sup>98</sup> After obtaining details of pay rates in neighbouring works, the Committee of Management refused to award any increase.

Not surprisingly, Ebenezer Breillat appeared to have more sympathy with the men's situation. In a report of 1843 he suggested that an increase in wages should be linked with output of gas and the adoption of the Manchester practice of annually presenting every industrious and deserving workmen with a suit



Donne's Map of Bristol 1826 showing  
the oil gas works. (Avon County Council)



the coal gas works on the right and  
ty Reference Library, Bristol).



of fustian clothing. Ebenezer also recommended an extra 1/- and rotation on Sundays for the barrow men who worked 7 days a week moving coal, coke, lime etc for 14/-.<sup>99</sup> These views were doubtless intended to appeal to the Quakers on the Committee and indeed four of its members were nominated to ascertain how many workmen it was absolutely necessary to employ on the Sabbath. Ebenezer emphasised that further experiments he had been making to improve output by using clay retorts instead of iron owed much to the care and attention of the gas workers.<sup>100</sup> The Assistant Engineer had himself appealed for a salary review in the summer of 1842 noting his confidence in being able to increase output whilst keeping coal consumption and retort numbers unchanged:<sup>101</sup> his only reward was a gratuity of 50 guineas approved in July 1843. In a letter of acknowledgement Ebenezer reiterated that 'the labourer is worthy of his hire' and referred to further ideas which he (their most devoted and indefatigable Engineer) had to benefit the company.<sup>102</sup>

During the autumn of 1843, Ebenezer Breillat visited a number of London and provincial gas undertakings noting matters of possible interest. At the Westminster station he observed the retorts in use were 9 feet long, set 5 or 6 to one fire and in some cases lasted 10 or 12 months in use: on all of them the words 'Cold Blast' were cast. In the Birmingham and Staffordshire works a failure to remove carbon from the inside of the retorts could reduce gas output per ton of coal by up to 1000 cubic feet - comparable to results noted in Bristol. The Birmingham works had an engine which turned a patent fan to draw gas from the retorts although this was not in operation. Ebenezer considered that this would be possible by virtue of reducing the pressure but felt that this purpose might be better achieved by installing a larger meter although conceding such an alternative might be more costly. He concluded that a change in the erection of ovens in Bristol to permit the carbonisation of 11/2 tons of coal, drawn once in 24 hours, would reduce labour and wear and tear on the plant.<sup>103</sup>

A letter dated 3 January 1844 indicated that changes made since the previous March when piece-work had been introduced enabled an extra 3 million cubic feet of better gas to be produced with a saving of £57 in wages.<sup>104</sup> Even so, he remained convinced that further improvements were achievable. Yet the lack of recognition and extra remuneration made Ebenezer reckless. H O Wills recorded in the Visitor's Book that he 'found the Sub Engineer engaged about a roof for the Bath Gas Works.'<sup>105</sup> The matter was duly reported to the Finance Committee whose remonstrances were endorsed by the main Committee of Management on 3 July 1844. Ebenezer sought to excuse himself by referring to his involvement as 'superintendence of a matter appertaining to a distant and utterly unconnected Gas Work' similar to previous instances.

He suggested that the restrictions in his contract of employment referred only to Bristol and the surrounding parishes and endeavoured unsuccessfully to obtain permission to visit Bath for a few hours per day when convenient.<sup>106</sup> Later, on being approached by the Chairman of the Cardiff Gas Light Company to provide drawings and specification for a new gas holder, he thought it proper to approach the Committee for permission to do the work. His application was turned down.<sup>107</sup>

One consideration which may have influenced the Committee in their dealings with Ebenezer was the health of his father, John Breillat. Already they had allowed him to claim for the cost of a horse and carriage in carrying out his work. On 20 November 1844 five members agreed to consider the duties of the Engineer with a view to reducing the time of his personal attendance. (It was agreed that he should be allowed time off between 11.00 a.m. and 3.00 p.m. for 'relaxation'). This was quickly followed by a decision to increase Ebenezer's salary to £200 from 21 December 1844.<sup>108</sup> The Committee must have recognised that the time was approaching when due account had to be taken of John's age and service since it was decided to have a portrait painted of the Engineer which should be hung up in the Committee Room.<sup>109</sup> A suitable frame was ordered from C Mitchell. On 4 December 1845, William Mitchell, writing from 37 College Green, obtained permission to exhibit the painting since it would be of great benefit to Mr Lewis, the artist.<sup>110</sup> Eventually, on 20 January 1847 John Breillat found it necessary to resign his position 'Having during the present season experienced so great a decay of ability both mental and physical that I cannot think of entering on another winter, which can only be painful to myself and injurious to the interests of the Company, especially now that the Committee are called upon to make such large and extensive alterations to meet the demand of the Public as may be considered a New Era in the affairs of the Company.'<sup>111</sup> It was considered that a new appointment was of such importance that it should be referred to the new Committee due to be formed after the Annual General Meeting. A special Sub-Committee held on 5 and 7 July 1847 offered the post to Ebenezer at an annual salary of £250, whilst his father became Consulting Engineer receiving £100 a year.<sup>112</sup>

Before John Breillat relinquished his old position there were clear signs of the need to make changes in both the manufacture and distribution of gas. He had presented a report to the Committee of Management on 3 July 1844 on the benefits of using a steam engine and exhaustor to draw gas from the retorts whilst preventing back pressure being exerted by the treatment plant and holders. A visit he made to the Fazeley Street Works in Birmingham confirmed the merits of a blower designed by George Jones which could operate also as



Lamp Post, c.1845 Wine Street.  
Gas Lamp 781 — Calotype by Rev. C. R. Jones.  
(Courtesy late Reece Winstone)



an exhauster. (It was revealed also that a machine capable of drawing from 20,000 to 30,000 cubic feet per hour had been ordered by the Clifton Company). The equipment was duly installed and observations made on 9 December 1845 indicated an increase of nearly 18% in gas output (13,036 cubic feet per hour compared with 11,058 cubic feet) for a cost of 13/- per day.<sup>113</sup>

Ebenezer also endeavoured to keep abreast of developments elsewhere. On 4 June 1845 he noted an opportunity for visiting Liverpool and Manchester 'at a cheap rate' and obtained leave of absence for a week to see the improvements made in the gas establishments of those towns. On 24 February 1846 he suggested building a new chimney stack to work 2 or 4 fans which, if applied to the exhauster would repay the £100 erection costs in the first year.<sup>114</sup> Then, after becoming Engineer, he was able to show improved results from using clay retorts rather than iron.<sup>115</sup>

A decision of the Committee of Management on 12 October 1842 to advertise the availability of gas during the day-time had increased the desirability of monitoring mains pressures. Ebenezer made a series of tests following a number of complaints relating to poor supply. He found that when all the lights were burning the pressures between the works and Canon's Marsh varied from 1 inch water gauge to 2/10ths and from the works round the Quay and the Back from 1 inch to 4/10ths. During the day, when little gas was used, pressures were nearly equal, except on the high ground. He concluded that pressures were reduced by friction of gas through the length of main and the necessity for it having to ascend and then descend again. Two alternative remedies were suggested: an independent main from the station to the low parts operating at higher pressure or a gas holder erected in a low situation in the town.<sup>116</sup> Experiments were made to determine the result on the street mains of increasing the pressure at the works. These revealed that the effects were nearly lost by the end of Nelson Street coupled with increased leakage and higher consumption in the public lamps.<sup>117</sup> Customer complaints had grown in number, the Clerk reporting the threats had been received to discontinue taking gas unless a proper supply was given.<sup>118</sup> (Such considerations doubtless contributed to the decision on March 1843 next to tender for the Clifton public lighting contract which would in any case have involved extra mains and additional holders). Eventually it was decided to provide another 14 inch main to Nelson Street which was followed in 1847 by a pipe of similar dimension to Bedminster via the New Cut.<sup>119</sup> A new gasholder was completed in 1845 to provide extra storage capacity.<sup>120</sup> Even so, additional lighting installations increased the enormous jump in gas demand which occurred at dusk such that the company decreed pressure should be 14/10ths from dusk to 8.00 p.m.,



Ebenezer Breillat (1796-1880)  
Assistant Engineer and later  
Engineer to the Bristol Gas Light  
Company.



George Frederick John Breillat  
(1825-1857)

Assisted his father, Ebenezer, until  
ill-health caused his retirement in 1854.

*Both photographs courtesy of Mrs. Robyn Ford, Ambervale, NSW.*

12/10ths from 8.00 to 9.00 p.m. and falling gradually to 8/10ths after 1.00 p.m.<sup>121</sup>

Everyday problems like damage to gas mains caused by the new water works pipe-laying operations, low pressure, poor burners in the cotton works and requests for a supply fully occupied Ebenezer's time. (A request to report on the Weston-super-Mare gasworks in 1849 must have been a pleasant change.<sup>122</sup>) Details provided in 1850 under the recent Public Health Act indicated that the manufacturing capacity could meet a demand three times as large as that being supplied.<sup>123</sup> Efforts to utilise this excess capacity were made during negotiations for amalgamation with the Clifton Company. Ebenezer and John Breillat were asked to consider whether storage capacity should be increased by telescoping some or all of the holders, provide additional purifying capacity, enlarge the pipes between the purifiers and holders and replace iron retorts by these made of clay.<sup>124</sup> Several of their proposals were approved by the Directors who agreed that G F J Breillat be appointed for 6 months to assist in mainlaying.<sup>125</sup> In fact Ebenezer's son, George Frederick John, was to remain with the company until 1854.<sup>126</sup>

The root cause of this increased attention was the decision of the Council, acting as the Local Board of Health, to extend gas lighting to the outer areas of Westbury, Bedminster, St James and St Paul, St Philips and St Jacob (The powers of Paving Commissioners were assumed by the Local Board of Health under the Public Health Act 1848). Furthermore, the eventual decision to amalgamate with the Clifton Company occasioned even more work for the officers such that Ebenezer was awarded £50 in July 1853 as a gratuity. John wrote from Cromhall, Gloucestershire — his second wife's home — to express thanks for his reward.

Many new gas undertakings continued to appear during this period: the majority being in small communities of less than 2500 population. Locally these included Newent, Berkeley, Thornbury, Clevedon, Newnham, Keynsham and Radstock. The Usk Gas Company was formed in July 1851, John Cherry<sup>127</sup>, one of Ebenezer's nephews, being appointed to run the new works. This, the manager's house and over 3000 yards of main were provided by the Neath Abbey Iron Company. A major setback for the young manager occurred early in 1852 when the ratepayers voted against the installation of street lighting to avoid the necessary 3d in the pound additional rate. Letters to the local newspaper complained bitterly that this was a vote for 'dingy streets, open sewers, mud heaps and lazy pigs'. The resistance did not last and by the mid-1850s the street oil lamps had been replaced by gas, gas lighting had been introduced into the House of Correction, and the church had installed gas fires.

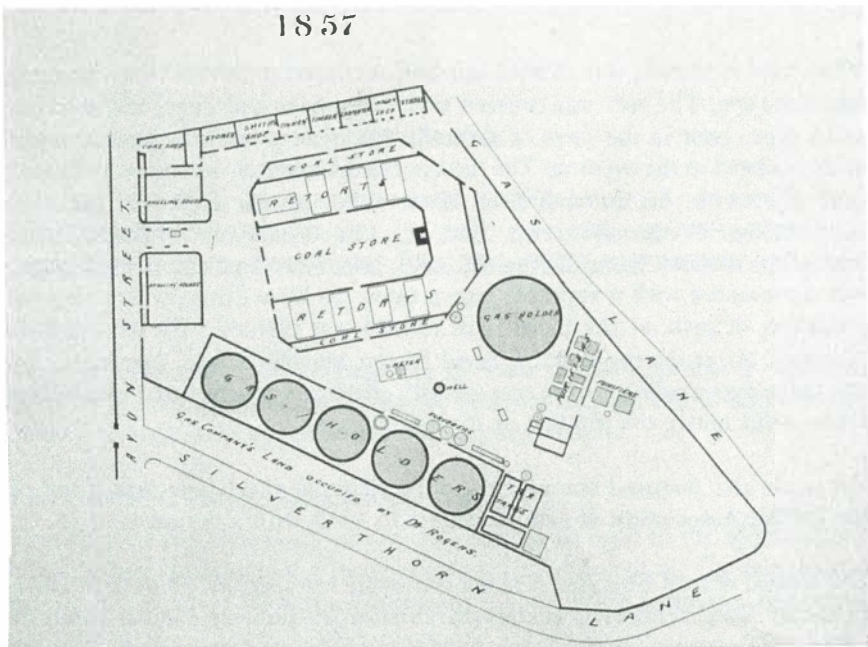
John Cherry married a resident named Mary and he remained with the Usk Gas Company until 1895<sup>128</sup>. Although professionally this must have been a satisfying time for the Breillat family, in private it was very different. Ebenezer's wife, Anne, died on 21 July 1852 at 3 Avon Street. Her father, George Frederick Bromhead, a rent agent and appraiser who had died in 1834, had left her, amongst other items, 14 shares in the gas company. After her decease, these shares etc were to be bequeathed to her son George Frederick John. However, he did not long survive himself, dying on 19 June 1857 at 14 Bedminster Causeway. His heir, George Frederick, who had been born in 1852, had died the following year. His aunt, Ann's sister Martha Cherry, who had shared Ebenezer's house whilst the latter's first wife still lived, was to become Ebenezer's second wife. (Such a marriage was contrary to Canon law). George Frederick John had married his first cousin, Henrietta, in 1848 which meant Ebenezer's daughter-in-law became his step-daughter.

Ebenezer's brother Joseph, who had returned to Bristol, died at Stephen Street, Bristol on 5 September 1853. The latter's son Philip Paul, christened in Cardiff on 2 April 1833, married Elizabeth Townsend of Bristol on 8 November 1853. Their son, another Philip Paul Breillat, was to die at Hammond, Indiana, on 10 November 1910. Even so, a great loss must have been felt when John Breillat himself died in 1856. The Directors acknowledged the debt which was owed to him 'not only as regards the moral excellences and strict integrity of his character, but also in evidence of their high appreciation of the sound practical intelligence, the persevering industry, and the warm desire to promote the best interest of the company, which he unceasingly exhibited for the long period of nearly 40 years.'<sup>129</sup> Needless to say there was no mention of any difficulties between the late engineer and the company which had arisen over the years, nor of the resolution of 1823 which forbade officers to hold shares in the undertaking.<sup>130</sup>

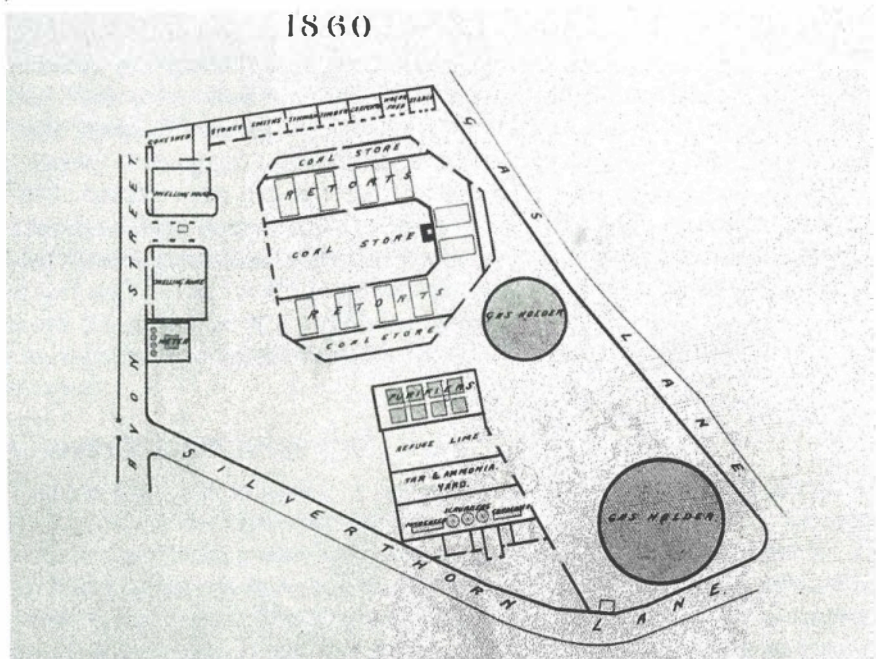
Ebenezer Breillat's salary was increased from £250 to £300 p.a. on 14 March 1855, at a time when he seems to have been experimenting with a primitive form of inclined retort and using oxides for purification on the lines of Hill's process. However, he resigned as Engineer at Avon Street works in 1857 due to impaired health, succeeding his late father as Consulting Engineer. He moved to Coburg Road, Montpellier, owning two properties which he named Murdock Villa and Winsor Villa after the gas industry pioneers. He continued to take a keen interest in events and secured the agreement of the directors to his giving all the men at Avon Street a treat on the jubilee of his father's experiments with gas lighting. This was duly celebrated on 2 September 1861 and described in detail by the *Bristol Daily Post*: 'One of the extensive sheds,



1857



1860



Plans of Avon Street, 1857 and 1860

where coal is stored, was cleared out and rendered presentable to the most fastidious eye. The roof was covered with evergreens and flags, and at either end a pipe, bent in the form of an arch, was pierced in order that it might be illuminated in the evening. The incorporated banner of the company floated from the centre ..... Some 200 sat down to tea ..... Mr E Breillat presided ..... Among the venerable relics (was) ..... one ancient pipe wrought into a bust of his Majesty King George III, who, in sombre and discoloured brass, was represented with a veritable crown upon his brow, from which shot up a number of rays, as the insignia of royalty was pierced with jets for that purpose.' After tea the band, formed fifteen months before, began to play and tissue paper balloons were sent off with envelopes attached so those finding them could notify the senders of their resting places.

His name also featured amongst the subscribers to the Benevolent Fund of the British Association of Gas Managers in 1877 with a donation of £5.

The second wife of Ebenezer Breillat was buried at Usk, Monmouth in 1870. Ebenezer Breillat himself, gentleman, died on 19 January 1880 at Beaufort Cottage, Grosvenor, Bath,<sup>131</sup> due to 'decay of nature from age, pulmonary congestion and general debility' in the presence of his grand-daughter, Marian (Mary Ann) Breillat of 9 Avenue de Trocadino, Paris. She was bequeathed Ebenezer's silver decanter stand and Murdock Villa, Montpellier. Another grand-daughter, Blanche Henrietta Breillat, received some plate and 3 and 4 Wadham Street, Weston-super-Mare, whilst a third, Florence Elizabeth Mary Breillat inherited Winsor Villa, Montpellier and the silver cup given to Ebenezer by the gas company.<sup>132</sup> On 23 November 1945 this cup was returned to the Bristol Gas Company by Mrs F E M Storrow. The Directors decided the cup should be housed in the Board Room where the portrait of John Breillat already hung on a wall.

## **APPENDIX**

### **DUTIES OF THE ENGINEER AND SUB-ENGINEER AT THE GAS MANUFACTORY AS SET OUT IN THE MINUTES OF THE FINANCE COMPANY COMPANY OF THE BRISTOL GAS LIGHT COMPANY 1830**

#### **COAL**

That the Engineer and Sub-Engineer do take special care that a sufficient quantity of coal be provided, that it be received in good order, and that the quality be such as is required for the respective uses.

#### **RETORTS, OVENS, BRICKS etc. etc.**

That they do feel that every article delivered to be used in the Manufactory be of the best quality, that it be agreeable to the orders of the Committee and that it corresponds with the Invoice or Check Book from the respective tradesmen.

#### **ERECTIONS**

That they do pay attention to the erection of all machinery and other apparatus necessary to the Manufactory, also to such repairs and alterations as may be required for the same.

#### **GAS**

That they do pay attention to the quality, quantity and economy of the gas manufactured, together with its condensation and purification; to the quantity of lime use; and also to the receptacles for the gas; and that any improvements in the manufacture of gas obtained by information, or resulting from their own experience be submitted to the Committee previous to its being generally adopted.

#### **NIGHTLY SUPPLY OF GAS**

That the Engineer do nightly at the proper hour as fixed by the Committee for Lights, lift the valve that supplies the gas to the public so as to prevent as far as may be the possibility of complaints, that 'till midnight either he or the Sub-Engineer do make the necessary alterations, so as duly to reduce the pressure, and that the Sub-Engineer do close the valve in the morning during the six winter months and that during the six summer months it be closed by the foreman of the watch.

## **DRAWING RETORTS — COKE**

That the Engineer or Sub-Engineer do attend to the drawing of the Retorts — see that they be charged with the proper quantity of coal — that the same be effectually carbonized and that care be taken by the workman, in cooling and carrying off the cokes.

## **WORKMEN**

That all workmen employed by the Company be under the superintendence and direction of the Engineer and Sub-Engineer who shall pay attention to their proper employment — see that the hours of their attendance be duly registered in the Book kept by the Porter for that purpose; but that the power of hiring and discharging workmen be solely rested in the Engineer.

## **DIARY**

That the Engineer or Sub-Engineer do enter in a Book kept for that purpose the quantity of Gas made per day, the number of Retorts and Ovens in use and of those in Store, fit for using also the stock on hand, the quantity of coals used and the number of men employed together with any observations that may be necessary.

That the Engineer or Sub-Engineer do keep an account showing when Retorts or Ovens are set; by whom they were manufactured; with what bricks they were built when set to work and when struck off, in order to show the durability of such Ovens, Retorts, Bricks etc.

## **METERS**

That the Engineers do inspect all Meters every six weeks, or oftener if necessary — take the account — enter the same in the Meter Book and deliver it to the Clerk when required and that in case of stoppages he do pay immediate attention so as to ensure the complaining party an early supply of gas.

## **PIPES, SYPHONS, VALVES etc.**

That the Engineer or Sub-Engineer do attend to the laying of the main and service pipes wherever required — to the fixing of syphons, valves etc. and that they see that the whole be in repair and the syphons pumped when necessary.

## **NEW FITTINGS**

That when the Sub-Engineer do inspect all new fittings, additional lights etc. and when properly done to affix the burners — take the hours of burning and return the same to the Clerk and cause the services pipe to be laid.



That he do attend to complaints of deficiency of gas leaks, broken or decayed Mains or Service Pipes, ascertain the cause get the same remedied or repaired, keep and account of the mens time, particularly William Brooks, William Marks<sup>133</sup> and Robert Marks<sup>134</sup> or any of the men employed out of the factory — also of materials used in repairing, and deliver an account of the same to the Clerk the first Monday in every month, who shall present the said Book to the Committee for lights at their respective meetings.

### **ENGINEER AND SUB-ENGINEER**

That the Engineer and Sub-Engineer do devote the whole of their time to the service of the company — live on the premises and be in attendance by night as well as by day when necessary.

## REFERENCES

1. *Bristol Gazette* 17 April 1856, *Bristol Mercury* 19 April 1856, *Bristol Mirror* 19 April 1856 and *Bristol Times* 19 April 1856.
2. *Bristol Gazette* 17 April 1856.
3. International Genealogical Index.
4. Entries are to be found in both the Registers of Portland Chapel and Ebenezer Chapel/King Street in the PRO.
- 5,6, Ebenezer Chapel/King Street Chapel Register. William Myles would appear to
- 7,8. have been named in honour of an itinerant Methodist preacher who died in 1828.
9. John Taylor, *A Book about Bristol* (1872) p.365. The Styx encompassed the infernal regions in nine circles.
10. *Bristol Times and Mirror* 25 March 1912. Bristol Men No.5. A Pioneer in Gas Lighting.
11. Elizabeth Ralph, *The Streets of Bristol*, Bristol Branch of Historical Association Pamphlet No. 49 (1981)
12. Bristol Commercial Rooms, Committee Book pp. 58-60. A letter in *Felix Farley's Bristol Journal* 30 November 1822 refers to a proposition to install oil gas apparatus in the cellar of the Commercial Rooms. Eventually, in February 1825 a Sub Committee desired oil gas from the Bristol and Clifton Oil Gas Company should be introduced. The quotation for fitting work was £30-£35 plus cost of carpentry.
13. This figure appears in the Committee Book of the Commercial Rooms held in Bristol Record office although A.G. Powell, *Bristol Commercial Rooms 1811-1951* (1951) states the cost of lamps and dips was £140 p.a.
14. Bristol Gas Light Company MB, 3 October 1817 in the Bristol Record Office.
15. Bristol Gas Light Company MB, 11 November 1818
16. A visit from Reuben Phillips was noted in Bristol Gas Light MB 22 July 1818. The terms for using the patent were 8d per 1000 cubic feet of gas consumed: this quantity to be assessed by measurement at 3/4 nights at each Equinox and averaging these results over 300 working nights per annum.
17. John F Wilson, *Lighting the Town* (1991) p.156. The Chartered Gas Light and Coke Company paid much higher salaries but was a very much larger undertaking with a mains network four times the size that of Bristol.
18. Bristol Gas Light Company MB, 12 July 1820. The works visited were at Bath, Reading, Westminster, Southwark, White Chapel, Dorset Street, Worship Street, Brick Lane, Shadwell and Brighton. In all cases except Bath and Reading higher yields of gas were obtained attributed to the larger coals used: it was recommended that trials should be made at Bristol with different sorts of larger coals.
19. The original offices were 2 rooms over the Post Office which the company decided to rent for £20 p.a. on 20 September 1816 (The first meeting of the Committee of Management being held there on 25 October 1816). On 27 December 1820 it was resolved to move the offices to 9, Queen Square. Meetings began to be held at 16 Castle Street in September 1821 where accommodation not required for the Company's business was used as the residence of the Clerk and his family.

20. Taunton Gas Light Company MB, 14 August 1821, Somerset Record Office. John Hendebourk, a subscriber, offered a new site adjacent to his silk mill.
21. Taunton Gas Light Company MB, 31 May 1822, 1 August 1822 and 4 September 1822.
22. Bristol Gas Light Company MB, 28 November 1821.
23. Bristol Gas Light Company MB, 22 January 1822.
24. Bristol Gas Light Company MB, 10 July 1822.
25. Bristol Gas Light Company MB, 26 September 1821. The Committee noted the action with great satisfaction and directed that no person of similar character be employed or retained in any capacity whatsoever.
26. Bristol Gas Light Company MB, 28 November 1821. Further evidence of a preoccupation with good time keeping was a subsequent decision on 12 December 1821 to erect a good 8-day clock with a four foot dial from Edgcombe and Nicholls at Avon Street for 45 excluding carpenter's work in fixing up etc.
27. Bristol Gas Light Company MB, 7 August 1822.
28. Bristol Gas Light Company MB, 13 February 1823.
29. The duties related to the clerical work involved in running the gas works including ordering and storekeeping. One of the reasons for dissatisfaction with Chapman related to alleged stock discrepancies.
30. Bristol Gas Light Committee MB, 11 June 1823, The notice was to take effect from 24 June 1823.
31. Bristol Gas Light Committee MB, 17 September 1823 reproduces a letter from Chapman of 17 September 1823 declining to accept a reduced salary but wishing to continue until 21 December 1823, this representing 3 months notice. The Committee were not prepared to change their resolution of 11 June to reduce this salary from 29 September so that he was at liberty to leave the company on that date.
32. Bristol Gas Light Committee MB, meeting in the afternoon 6 February 1823.
33. Bristol Gas Light Committee MB, 10 December 1823. This was the same meeting which extended Ebenezer's employment for one year only.
34. Bristol Gas Light Committee MB, 16 October 1822. Calls of about 10% were made at intervals, usually monthly, with defaulters losing their shares.
35. Bristol Gas Light Committee MB, 8 May 1822.
36. Bristol Gas Light Committee MB, 17 March 1824 arising from a revelation of the Committee of Expenditure 17 December 1823. The time of the meetings was changed to 10 o'clock in the morning.
37. Bristol Gas Light Committee MB, 3 March 1824.
38. Bristol Gas Light Committee MB, 17 March 1824. Initially Breillat's letter was passed to the Committee for Buildings etc.
39. Bristol Gas Light Committee MB, 29 April 1824.
40. The Act received the Royal Assent on 17 June 1824.
41. Manchester Gas MB, 30 August 1824, refers to a letter of 9 April 1824 from Ebenezer but gives no details. It may be this correspondence that led to John's reference on 15 April 1824 to 'this day an occurrence has taken place which is still pending that obliges me to request that you will indulge me till the next meeting of the committee' regarding his own situation (Bristol Gas Light Committee MB, 15 April 1824).
42. Reproduced in Bristol Gas Light Committee MB, 19 August 1824, the letter from Gilbert Winter, Chairman of the Directors of the Manchester Gas Works includes a postscript asking whether Ebenezer was acquainted with the manufacture of oil as well as coal gas.

- 43,44 Bristol Gas Light Committee MB, 19 August 1824.
45. An old account book in Manchester shows that Ebenezer Breillat received a salary of £250 p.a. but had to pay £30 p.a. in house rent (from June 1826) and £5 p.a. for coal.
46. Bristol Gas Light Committee MB, 16 September 1824. In a postscript Ebenezer wrote 'I have in the Dwelling house a copper furnance and a clamp kiln built up which if the Committee are disposed to purchase it would prevent disfiguring the kitchen by pulling down'. It was agreed by the Committee to purchase the articles at cost price.
47. Bristol Gas Light Committee MB, 19 August 1824.
48. Bristol Gas Light Committee MB, 8 December 1824.
49. Richard Jones and Cyril G Reeve, *A History of Gas Production in Wales* (1978) p.23.
50. The original instruction had been issued on 23 May 1823. Two experienced workmen, George Hill and Thomas Barton, assumed responsibility for turning off the gas upon the recommendation of John Breillat.
51. Bristol Gas Light Committee MB, 6 December 1826.
52. British Gas plc, South Western Archives.
53. British Gas plc, South Western Archives.
54. British Gas plc, South Western Archives. The Bristol Gas Light testimony about the use of lime and water in purification prior to 1817 and other evidence was obtained from William Murdoch of the Soho Foundry and 'Cooper the Chemist'.
55. Bristol Gas Light Committee MB, 21 November 1827. A letter from Thomas Spinney showed the plaintiffs also had engaged expert witnesses such as Ackerman and Faraday. A second letter from Spinney indicated that he hoped to counter Ackerman's testimony with another affidavit from Clegg. Further testimony was sought to amplify Breillat's reference to the placing of lime over perforated plates — a specific aspect of the Phillips patent — and knowledge of a man named Chick who had assisted Breillat in his experiments. Bristol Gas Light Committee MB 5 December 1827 shows that Spinney also received an affidavit from Ebenezer Breillat.
56. Bristol Gas Light Committee MB 8 December 1827 indicated that learned opinion believed the Lord Chancellor would not grant an injunction restraining the plaintiff from using the process but would direct in issue to try the validity of the patent in the Lower Court. Consequently, it appeared expedient to avoid further legal expenses and a sum of not exceeding £2,000 was suggested on behalf of the companies involved. John Breillat had estimated that a reversion to the old system of purification in Bristol would be expensive - costing at least £200.
57. Bristol Gas Light Committee MB 19 December 1827. Lye also became a Committee Member of the Bristol and Clifton Company.
58. General Meeting of Proprietors 7 February 1828 in response to a resolution from the Committee of Management.
59. Bristol Gas Light Committee MB 16 January 1828.
60. Bristol Gas Light Committee MB 31 March 1830.
61. Bristol Gas Light Committee MB 29 September 1830.
62. Bristol Gas Light Committee MB 27 February 1828.
63. Bristol Gas Light Committee MB 16 March 1831.
64. Bristol Gas Light Committee MB 26 October 1831.
65. Bristol Gas Light Committee MB, 8 October 1830, 24 October 1830 and 8 December 1830 dealing with sales to J S Fry and Mrs Bonbonous. The original price sought was £39 per share.



66. Bristol Gas Light Committee MB, 22 December 1830.
67. Bristol Gas Light Committee MB, 2 February 1831.
68. James Webb was a Quaker chemist and druggist who served on the Committee of Management 1828-53 and subsequently continued as a Director of the Bristol United Gas Company until his death on 16 January 1865 at a Board Meeting.
69. Bristol Gas Light Committee MB, 16 February 1831 and 2 March 1831.
70. Bristol Gas Light MB, 16 March 1831. A later entry for 12 October 1831 records payment of £51-5s-0d from 8 June which suggests something like £4-15s-0d went in travelling expenses from Manchester.
71. Bristol Gas Light Committee MB, 28 September 1831.
72. Bristol Gas Light Committee MB 7 December 1831 refers to a letter from J Harford, Council House, Bristol which gave the period of attendance by the pensioners as from 30 October to 7 November. The rates of pay given in MB 9 November 1831 were 1/- per night for privates and 2/6d per night for sergeants.
73. Bristol Gas Light Committee MB, 30 March 1831.
74. Bristol Gas Light Committee MB, 18 April 1831.
75. Bristol Gas Light Committee MB, 11 May 1831. The valve was covered by British Patent No. 6123 of 2 June 1831. A hydraulic main was a type of collecting main containing water maintained at a predetermined depth which prevented gas flowing back into the retort.
76. Bristol Gas Light Finance Committee MB, 24 March 1835.
77. Bristol Gas Light Finance Committee MB, 14 and 28 July 1835.
78. Bristol Gas Light Finance Committee MB, 5 December 1836.
79. Bristol Gas Light Committee MB, 6 December 1837. It is worth noting that Peter Pindar also disparaged the use of brick ovens at Brighton on account of heavy leakage of gas. In London higher operating pressures and the porosity of local clay meant iron retorts remained common until the middle of the century.
80. Bristol Gas Light MB 1 March 1837. According to the Engineer's report the mains system had been planned on the basis of Temple Back continuing in production and Avon Street being enlarged as required to meet rising demands for gas. However, other large towns eg. Manchester, Liverpool, and Birmingham had had to lay new mains and provide extra manufacturing capacity.
81. Bristol Gas Light MB 24 July 1839.
82. Bristol Gas Light MB letter from J L McAdam 4 December 1841 complaining of the poor state of the turnpike roads whose reinstatement had been affected by bad weather.
83. Peter Harris, *Bristol's Railway Mania 1862 - 1864* pp. 1-5 contains an account of the early railway development in Bristol illustrated by plans
84. Bristol Gas Light MB 13 October 1841.
85. Report of the Committee appointed for considering the most efficient mode of lighting the City of Wells with Gas, together with the best Rules, Regulations and Provisions, for conduct of the same. British Gas plc South Western Archives.
86. Richard Jones and Cyril G Reeve, *op.cit.*, Appendix No III pp. 211-226.
87. Dursley Gas Light and Coke Company M 18 May 1836. D/D Gloucestershire County Record Office.
88. HLRO, Committee on the Bath Gas Company Bill, 30 May 1837, p.37.
89. Bristol Gas Light Finance Committee MB, 4 July 1837.
90. Bristol Gas Light MB 12 February 1834. The Clerk was instructed to prepare a 'recommendation' that William could 'conduct a gas manufactory' which the

Chairman would sign if it met with his approval. D E Roberts, *The Lincoln Gas Undertaking 1828-1949* p 10 notes that the manager, Thomas Crump, was discharged in January 1834 but re-engaged in February at a salary reduced from £90 to £70 p.a. with free gas, coal and house as the works.

91. *Matthews' Directory* for 1835 and 1836.

92. Bristol Gas Light MB 6 June 1838.

93. Bristol Gas Light MB 13 February 1839.

94. Annual gas rental figures were:

1836	£11,867	1839	£11,221
1837	£11,663	1840	£12,264
1838	£11,320	1841	£13,942

Although these figures may have compared well with ordinary labourers, they were only a little above the rates obtained by some skilled craftsman eg. London compositors.

95. The plot was purchased by John Breillat on 29 July 1839. It was in unconsecrated ground as the family were non-conformist.

96. Census 1841.

97. Bristol Gas Light MB 18 September 1839. One of the signatories was Philip Chick.

98. Bristol Gas Light MB 1 and 15 September 1841. Only one name is common to both the 1839 and 1841 letters, that of James Hooper.

99. Bristol Gas Light MB 24 May 1843.

100. Bristol Gas Light Subcommittee No. 2 MB for 7 August 1843 gives further information on carbonising results for the twelve months ended June 1842 and June 1843. The average yield per retort/day rose from 2322 to 2635 cubic feet. Despite a reduction in the average yield per ton of coal carbonised - from 8099 to 7320 cubic feet - the altered practice required fewer retorts to be work or on stand-by and a considerable reduction in the fuel used to heat the retorts. However, it appeared that generally the workmen reacted unfavourably to proposals to alter work patterns for Sunday observance although one fireman (Bowen) had been in the habit of making special arrangements when he wished to attend more than one service.

101. Bristol Gas Light MB 17 August 1842.

102. Bristol Gas Light MB 20 July 1843.

103. Bristol Gas Light MB, 8 November 1843.

104. Bristol Gas Light MB, 3 January 1844. For the March quarter 1843 19.7 million cubic feet were produced for a wages bill of £282-9s-8d, whereas in December 1843 output was 22.7 million cubic feet for wages of £225-2s-4d.

105. Bristol Gas Light MB, 19 June 1844.

106. Letter from E Breillat of July 1844 reproduced in Bristol Gas Light MB of the same date.

107. Bristol Gas Light MB 29 January 1845.

108. Bristol Gas Light MB, 4 December 1844.

109. Bristol Gas Light MB, 10 September 1845.

110. Bristol Gas Light MB, 4 December 1845.

111. Bristol Gas Light MB, 20 January 1847.

112. Bristol Gas Light MB, 7 July 1847.

113. Bristol Gas Light MB, 17 December 1845, the cost of 13/- comprised coal 7/-, wages 5/- and interest wear and tear 1/-. One function of the exhaustor was to force gas through the purifiers and other apparatus and ultimately to raise the holder. Heavy back pressure — despite weights used to counter-balance the holders — had contributed to the formation of carbon deposits on the retorts.

114. Bristol Gas Light MB, 25 February 1846.

115. Bristol Gas Light MB, 10 November 1847. The results were:

	Clay	Iron
Beds of retorts	3	4
Gas produced (000 cubic ft.)	51,177	50,017
Coal carbonised	5 tons 12 cwt 2 qtr	6 tons
Fuel for heating retorts (tons)	1½	2

116. Bristol Gas Light MB, 18 January 1843. In Subcommittee Minutes for 17 February 1843 it was noted that Birmingham favoured district holders and the erection of additional gas works whilst Liverpool had 2 works connected by a 9" independent main.

117. Bristol Gas Light MB, 15 March 1843.

118. Bristol Gas Light MB, 10 May 1843

119. This was due to consumer complaints about pressure, one grocer stating that he was determined to seek a supply from the Clifton company.

120. The company experienced difficulty in operating the holder as some of the castings fractured eg. Bristol Gas Light MB, 20 May 1846.

121. Bristol Gas Light MB, 29 March 1848.

122. Bristol Gas Light MB, 31 October 1849.

123. Bristol Gas Light MB, 20 February 1850.

124. Bristol Gas Light MB, 23 October 1850.

125. Bristol Gas Light MB, 27 November 1850, some additional technical assistance was necessary as Thomas G South had given notice on being appointed General Manager of the Great Central Gas Consumers Company in London.

126. In a letter of resignation dated 13 March 1854, G F J Breillat referred to his poor health which was being exacerbated by his work on meter reading contrary to medical advice. Moreover, this meant that he was prevented from assisting his father on engineering matters, eg. pipe-laying, which he felt was more properly part of his duties.

127. John Cherry was the nephew (and subsequently step-son) of Ebenezer Breillat, his father having been a cabinet maker in Bristol. Alfred, his brother, was apprenticed to Edward Streates, 'sadler', for seven years on 17 October 1834, before becoming a carpenter. The 1841 census showed Alfred and his mother, Martha, shared Ebenezer's household at Avon Street.

128. Information about Usk from David R Lewis, *Usk 1840-1860*, in Newport Borough Library who gives John Tempest Cherry as the name of the manager.

129. Unanimous resolution of the directors quoted by George Pryce, *Popular History of Bristol* (1861).

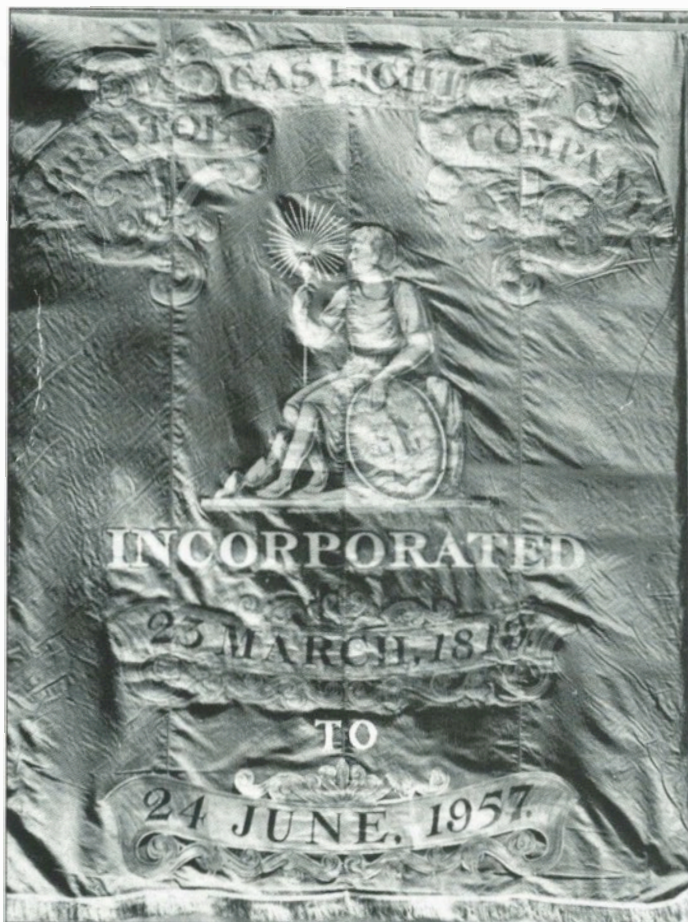
130. Ebenezer Breillat had shares in the rival oil gas company and for a time was denied access to their meetings etc. when the question of amalgamation was under review.

131. According to the rate books in Bath Guildhall archives, this substantial detached property was rented by Ebenezer Breillat about September 1879, just a few months before his death.

132. Further details of the will dated 8 June 1874 can be found in the Bristol Record Office.

133. William Brooks and William Marks — a foreman since 1822 earning 28/- a week — were both paid full wages when seriously ill in 1837.

134. In 1839, 7 guineas was paid for Robert Marks' medical costs and 13 guineas to his widow.



Banner of The Bristol Gas Light Company amended by the workmen to commemorate the virtual end of the Avon Street Works in 1957.



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